BRUHAT BANGALORE MAHANAGARA PALIKE

NAME OF WORK:- Providing Junction Improvement works under SURAKSHA-75 in arterial and sub arterial roads at Domlur-HAL Old Airport Junction, Anil Kumble Circle, Ashwathnagar Bus Stop Junction, Swami Vivekananda Metro Station Junction, Suranjan Das Road Junction-NGEF Signal Hosur Road Junction & Nagawara Junction in East Zone

DRAFT TENDER SCHEDULE

Item No	Description of Work	Unit	Total Quantity as per Estimation	Rate as per estimate in Rs.	
				In Figures	In Words
1	**Dismantling guard rails** by manual means and disposal of dismantled material with all lifts and lead, stacking serviceable materials and unserviceable materials separately..	M	100.00		
2	**Dismantling of existing structures** like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. iiv) **Dismantling Stone Masonry** 2.10.B. Rubble stone masonry in cement mortar	Cum	254.23		
3	**Dismantling of existing structures** like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts complete as per specifications. i) Lime /Cement Concrete. I. By Manual Means: :**B. Cement Concrete Grade M-15 & M-20.**	Cum	155.66		
4	**Dismantling precast concrete or stone slabs** in walls, partition walls etc. including stacking to the appropriate disposal area as per direction of Engineer-in-charge. **Thickness up to 40 mm up to 75mm**	Cum	211.86		
5	**Dismantling of Flexible Pavements** Dismantling of Flexible pavements and disposal of dismantled materials and stacking serviceable and unserviceable materials separately By Mechanical Means **Bituminous course**	Cum	2452.44		
6	**Dismantling Brick / Tile work** Dismantling of Flexible pavements and disposal of dismantled materials and stacking serviceable and unserviceable materials separately By Mechanical Means	Cum	1310.15		
7	**Earth work** in surface excavation by mechanical means for lowering & leveling the ground for all works other than foundation in all kinds of soils & upto depth not exceeding 300mm as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, removal of stumps and other deleterious matter including dressing of excavated surfaces, disposing off or levelling the excavated earth or sorting & stacking the selected earth for reuse in a radius of 50 m and lift upto 1.5 m including cost of labour, tools, usage of machinery & other appurtenances required to complete the work. In all kinds of soils **upto 300 mm depth** In all kinds of soils upto 300 mm depth	Cum	2141.94		
8	Loading and Unloading of Stone Boulder/Stone aggregates/Sand/Kankar/Moorum. (Tipper 5.5 m3)	Cum	1465.81		
9	Cost of Haulage Excluding Loading and Unloading Taking output 18t load and lead 10 km = 180 t.km	Cum	1876.23		
10	Filling approved earth (excluding rock) in trenches, plinth, sides of foundations and other similar works etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	Cum	96.09		
11	Providing and laying in position Cement Concrete for levelling course for all works in foundation. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed, laid in layers not exceeding 150 mm thickness, well compacted using plate vibrators, including all lead & lifts, cost of all materials of quality, labour, Usage charges of machinery, curing, and all the other appurtenances required to complete the work as per technical specifications. **Mix 1:2:4 Using 40 mm nominal size graded crushed coarse aggregates**	Cum	942.93		
12	Providing and laying in position **Cement Concrete for all Sub structures** of building, Irrigation works, Sub structure works of bridges, Drain works & other parallel works from 0.50m to 3.50 m height. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed with super plasticisers, laid in layers, well compacted using needle vibrators, providing weep holes wherever necessary, including all lead & lifts, cost of all materials of quality, confirming to the requirements of relevant IS codes, labour, Usage charges of machinery, curing and all other appurtenances required to complete the work as per technical specifications. **M20 Design Mix Using 20 mm nominal size graded crushed coarse aggregates**	Cum	895.63		
13	Providing and laying in position **Cement Concrete for all Sub structures** of building, Irrigation works, Sub structure works of bridges, Drain works & other parallel works from 0.50m to 3.50 m height. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed with super plasticisers, laid in layers, well compacted using needle vibrators, providing weep holes wherever necessary, including all lead & lifts, cost of all materials of quality, confirming to the requirements of relevant IS codes, labour, Usage charges of machinery, curing and all other appurtenances required to complete the work as per technical specifications. **M20 Design Mix Using 20 mm nominal size graded crushed coarse aggregates**	Cum	84.74		
14	Steel Fabrication. Supplying, fitting and placing **TMT FE 550 / 550D Steel** Reinforcement including cost of all materials, machinery, labour, cleaning, straightening, cutting, bending, hooking, laping/welding joints, tying with binding wire / soft annealed steel wire and other ancilary operations complete as per drawing and technical specification.All other type of structures	Tonne	10.07		
15	Supplying and fixing M15 grade precast **cement concrete Kerb stone**s for Roadway, Sidewalls and gutters fixed with CM 1:3 fixed and finsihed in line as per direction of Engineer in charge. (The cost of PCC shall be paid extra) 600 x 300 x 150 mm size	M	5600.48		
16	**Precast Cement Concrete Interlocking Blocks** Providing and laying 60mm thick factory made precast M -30 grade Cement Concrete Paver Block as per IRC SP 63:2018 & IS 15658 for Cycle Tracks & Pedestrian Footpaths of approved shape and colour, laid in required pattern and including over 30mm thick compacted bed of coarse sand, filling the joints with fine sand etc. all complete as per the direction of Engineer-incharge. (WMM/WBM Base to be paid separately if necessary as per relevant technical specification)	Sqm	3701.30		
17	Providing and laying **100mm thick pre-cast cover slabs over Road side drains** / utility ducts / Rain water harvesting pit of width not exceeding 1000 mm using M20 concrete reinforced with TMT bars Fe 550 @ 6kg/ m2, slabs jointed in CM 1:3 proportion and nicely finished Including providing holes in the Cover slabs wherever necessary for easy drainage of surface water including of labour, materials, scaffolding, usage of machinery, curing, lead and lift charges etc, Complete.	Sqm	1365.39		
18	Providing and laying **pre-cast cover slabs over Road side drains 250mm thick** using M20 concrete Cover slabs wherever necessary for easy drainage of surface water including of labour, materials, scaffolding, usage of machinery, curing, lead and lift charges etc, Complete.**Data rate**	Sqm	181.22		
19	**Reinforced Cement Concrete Crash Barrier:**Provision of an Reinforced cement concrete crash barrier at the edges of the road, approaches to bridge structures and medians, constructed with M-25 grade concrete with TMT reinforcement conforming to IRC:21 and dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre-moulded asphalt filler board, keyed to the structure on which it is built and installed as per design given in the enclosure to MOST circular No. RW/NH - 33022/1/94-DO III dated 24 June 1994 as per dimensions in the approved drawing and at ocations directed by the Engineer, all as specified. (Area = 0.243 m2/m, single face)	m	242.20		
20	**Tack coat on Bituminous surface:** Providing and applying tack coat with RS1 Bituminous Emulsion using emulsion pressure distributor at the rate of 0.20 kg/m2 on the prepared bituminous surface cleaned with mechanical broom	Sqm	240.00		
21	**Bituminous Concrete Grading II for traffic <20 MSA** Providing and laying Bituminous Concrete with 100 TPH capacity hot mix plant batch type using crushed aggregates of specified grading, premixed with bituminous binder VG-30, @ 5.4 per cent of mix and filler, transporting the hot mix to work site, laying with mechanical paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 507 complete in all respects	Cum	16.13		
22	Providing and laying 100mm thick factory made pre-cast M40 grade Cement concrete paver block as per IRC SP 63:2018 & is 15658 for Commercial trafic Axle load repentition more then 10MSA upto 20MSA for Industrial streets, Bus and Truck parking of approved shape and colour, laid in required pattern, filling the joints with fine sand etc. all Complete as per the direction of Engineer-in-charge. **Over the Butuminous Layer**	Cum	97.50		
23	Providing and Fixing of Cuddapah Slab of 2.5 cm thick Including cost of materials, transportation etc., all Complete as per the direction of Engineer-in-charge.	Cum	195.00		
24	**Cold Plastic Paint** Providing and applying Cold plastic paint two component rolled on surfacing material solvent free, high build two pack seamless,tough,skid resistant, material with property of attaining 2mm thickness in single coat application white(or as required colour)based on glass and colour retaining acrylic cross linking resin system for coloured road surfacing including surface cleaning and cost of all material etc. complete. (All inclusive on bitumen or concrete surface) work shall carried out as per IRC 35-2015 clause 2.2)	Sqm	5579.58		
25	**Road Marking with Hot Applied Thermoplastic Compound with Reflectorising Glass Beads on Bituminous Surface** Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 g/m2 area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35:2015.The finished surface to be level, uniform and free from streaks and holes	Sqm	2037.97		

26	Supplying and Fixing of **Molded Shank Raised Pavement Markers / Cat's Eye** made of polycarbonate and ABS moulded body and reflective panels with micro prismatic lens capable of providing total internal reflection of the light entering the lens face and shall support a load of 16000 kg tested in accordance to ASTM D 4280 Type H and complying to Specifications of Category A of MORTH Circular No RW/NH/33023/10-97 DO III Dt 11.06. 1997. The height, width and length shall not exceed 50 mm, 100 mm and 102 +/- 2 mm and with minimum reflective area of 13 cm2 on each side and the slope to the base shall be 35 +/- 5 degree. The strength of detachment of the integrated cylindrical shanks, (of diameter not less than 19 +/- 2 mm and height not less than 30+/- 2 mm) from the body is to be a minimum value of 500 Kg. Fixing will be by drilling holes on the road for the shanks to go inside, without nails and using epoxy resin based adhesive as per manufacturer's recommendation and complete as directed by the engineer.The contractor shall submit a two year warranty for satisfactory field performance including stipulated retro-reflectance of the reflecting panel, to the Engineer.	No	1120.00		
27	**Tubular Marker / Spring post 700 mm (Flexible Bollards)** - Providing Tubular marker made up of Polyurethane used to divide opposing lanes of road users shall be fixible in nature. Tubular marker having height 700 mm shall be having 75 mm Reboundable work zone retroreflective sheeting as per ASTM 4956 S2 (Application of Tubular Marker shall be done as per IRC:SP 55:2014)	No	99.00		
28	**Road Delineators** - Supplying and installation of delineators (road way indicators, hazard markers, object markers), 80-100 cm high above ground level, painted black and white in 15 cm wide strips, fitted with 80 x 100 mm rectangular or 75 mm dia circular reflectorised panels at the top, buried or pressed into the ground and conforming to IRC-79-2019 and the drawings.	Each	54.00		
29	**Retro-Reflectorised Traffic Signs:** Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC:67:2022 made of Class C Type XI retro reflective sheeting fixed over 2 mm thick aluminium sheeting vide clause 801.3, 3mm/4mm thick Aluminium composite material sheet depending on the size of the sign fixed over the back support frame of min 25 x 25 x 3mm angle mounted on a mild steel circular pipe 65 NB, 3.2 mm thickness firmly fixed to the ground by means of properly designed foundation with M25 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing.The sign shall be maintained as per section 12 of IRC:67:2022. **60 cm Equilator Triangle**	Each	74.00		
30	**80CM X 60CM Rectangular**	Each	16.00		
31	**90 cm high octagon**	Each	33.00		
32	**90 cm circular**	Each	34.00		
33	**Painting on concrete surface :** Providing and applying 2 coats of water based cement paint to unplastered concrete surface after cleaning the surface of dirt, dust, oil, grease, efflorescence and applying paint @ of 1 litre for 2 m2.	Sqm	4587.05		
34	Supplying and installation of **Flexible Median Marker** (road way indicators, hazard markers) as per IRC 79-2019 for improving median visibility of the road.It shall be made from a combination of tough, high impact resistant engineering thermoplastic material with edge sealed and U shape structure having rebound/ bounce back property having overall height, width and body thickness not less than 180mm, 120mm and 6.5 mm respectively. The reflective sheeting shall be of Type XI Flourescent Yellow as per IRC : 67 and it should be on both the face. The logo of the manufacturer shall be embossed on either side of the body in the injection molding process . The body of FMM shall bounce back to its original position after 750 numbers of hits using pendulum of 1.8 Kg conforming to ASTM D 256. It shall be fixed by a combination of epoxy adhesive and grouting/Drilling on concrete medians or properly constructed solid medians.	Each	330.00		
35	Providing and fixing Steel work in built up tubular (round, square or rectangular hollow tubes etc.) trusses etc., including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete. Hot finished seamless type tubes including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	Kg	1750.00		
36	**Grating:** Providing and fixing Structural Steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge.	Kg	678.95		
37	Bollard -providing and supplying of sadarahalli grey bollards of hight 0.9m and width of 0.45m width , cut to required shape including cost of materilas, labour, transportation etc	Each	650.00		
38	Supply and erection of 14 Feet Height Street Light Pole 14 Feet Height Street Light Pole on suitable cement concrete foundation with 2.5 Feet height dia 95 mm cast iron decorative round pedestal as per design weighing not less than 37Kgs, the pedestal shall be fitted with Class 'C' G.I.Pipe 7 Feet height 75 mm outer dia and 7 feet height top pieceouter dia of 65 mm fixed by measure of threading/welding/coupling complete. (excluding foundation).	Nos	80.00		
39	Supply of LED pole mounting type post top lantern with pressure die cast aluminium housing body for optimal thermal dissipation. Lamp compartment comprising of anti glare clear diffuser with Injection moulded polycarbonate/ clear glass material, delivering superior light outputRated life Burning Hrs 50000 hr@ Lumen Maintenance of 70%, CCT > 5500K, IP 66 optical and electrical compartment & impact resistance of complete luminaire >IK08. Power Factor>0.9 with mains, Surge Protection- Min 5KV along with Over voltage/Overload, short circuit/ miss-wiring protection. Compatible for pole mounting with outer dia of 40mm to 50mm. Universal Voltage driver to operate wide voltage range from 100V to 270V 50/60Hz application. Compliance to IS 10322/1 EC 60598, LM 79 & LM 80 Adherence with RoHS. UL approved MCPCB LED Efficiency>1301m/w, nominal CRI >75. Luminaire manufacturer should have in- house facility accredited by NABL/CPRI & any Government certified agency & Design & Development facility certified by ISO 9001:2008. Housing with supplier word mark /name shall be Engraved / Embossing on the die cast housing/ Body part Warranty of 2 Years against anymanufacturing defect working under standard electrical conditions as mentioned above should be given by LED manufacturer & Cree/Nichia/ Lumileds/Osram make LED Source.	Nos	80.00		
40	Fixing charges of post top/ Gate/ Garden fitting /LED on the existing CI / GI or any other pipe using required size of reducer, wiring using suitable wires	Nos	80.00		
41	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall.50 mm nominal dia Pipes	Mts	640.00		
42	4 Core, 16 Sqmm, 30 No GI Wires (1.6 mm)	Mtr	3200.00		
43	LABOUR for Aerial Bunched Conductor & Accessories. Stringing of 11 kV grade Aerial Bunched 3 Core cable of XLPE insulation of size 3x95 Sqmm + 1x70 Sqmm with Insulated Messenger Wire	Mtr	3200.00		
44	Digging of Pit 1.8 Mtr depth for errection of 9 to 10 Mtr Long Steel/RCC/PSCC supports as per approved Drawing. **Hard rock (By Chizling and/or wedging**	Mtr	2000.00		
45	Supplying and drawing Flexible Multicore Cable manufactured with electrolytic grade flexible copper with low conductor confirming to IS:8130-1984 and (Virgin) PVC insulation sheathed suitable for working voltage upto 1100Volts as per IS-694:1990 **3C X 4Sq.mm Copper Flexible**	Mtr	400.00		
46	Supplying fixing and wiring earth electrode for grounding of lifts, transformers, DG sets etc. using 40 mm dia 2.9 mm thick 2.5m long GI pipe with GI funnel with mesh and suitable size reducer fixed on the top of the earth electrode.The funnel should be enclosed in a CC chamber of 400x400x400 mm with a cast iron cover. The earth electrode shall have staggered holes of 12 mm dia and the electrode should be covered 150 mm all-round with alternate layers of salt and charcoal from the bottom of the CC chamber. The connection from the electrode is to be established through GI strip using GI bolts and nuts. **8 SWG GI Wire**	Mtr	7.00		
47	Supplying and running of GI/Copper strips for grounding connections, using necessary fixing materials as required. **25mm x 3mm GI Patti**	Rmt	35.00		
48	Supplying and fixing Moulded Case Circuit Breaker (MCCB) over the existing wood/panel board using necessary screws, bolts, nuts, necessary phase separators, handle and wiring complete. Protection of Overload and Short circuit with thermal Magnetic/Micro processor release and Earth Fault as per IS 13947. (Icu = Ics) **Three Pole**- 200Amps 36kA.	Each	7.00		

49	Supplying and fixing miniature circuit breakers on existing MCB distribution boards using necessary fixing materials and 'C' Type curve, indicator ON/OFF, energy cross-3 with Short circuit breaking capacity of 10K and complete wiring as required confirming to IEC 60898. **6-32Amps TPN**	Each	14.00		
50	Providing & fixing of LED Strip lights at required location as per the direction of engineer in charge.(MARKET RATE)	Mtr	400.00		
51	Supply of good quality Red soil for gardening and growing of plants, shrubs, etc., including the % weightage given to B.B.M.P area.	CUM	2420.52		
52	Developing the area for shrubs by digging to a depth of 0.45m, filling 50% with sand (0.0375 cum), FYM (0.075 cum), Red earth (0.21), (i.e, in the proportion of 1:2:3) and planting with well established plants (8 plants per sqm) exclusive of cost of plants and inclusive of ingredients.	SQM	815.47		
53	**Scraping and Removing Top Soil** cleaning the site by scraping and removing top layer of soil, removing unwanted debris, grass, along with execavated earth to a distance of 500m from the spot, including lead, lift loading and unloading charges (1x1x0.15m)	SQM	3218.73		
	1st Digging For Lawn Earthwork digging including removing weeds. Debris if any and breaaking of clumps watering etc.m to a depth of				
	2nd Digging For Lawn Digging for second time and removing weeds if any miner leveling to a depth of 0.45m				
	Soil filling for lawn : Supply and Stocking good quality red earth etc., for filling the top layer to a depth of 0.15m {1x1x0.15m}				
	Providing Sand, FYM and Red earth in the ratio of 1:3:6 and spreading to depth of 7.5 cm at the required site				
	Sand (0.075 cum/Sqm) - Rs 10.87				
	FYM (0.0225 cum/ sqm) - Rs 23.19				
	Red earth (0.045 cum/sqm) - Rs 19.74				
	Chemical Fertilizer : Super Phospates (50gm/sqm : Rs 0.1.00/sqm) Neem Oil cake (250gm/sqm: Rs 6.00sqm), Bone meal (250gm/sqm: Rs 4.00/sqm), Potash (50 gm/sqm: Rs 1.00/sqm), Furodon (25gm/sqm: Rs 2.00 /sqm), Ammonium Sulphate (100 gm/sqm :Rs 2.00/sqm).				
	Supply of Lawn grass				
	Bermoda /Phashpulam				
	Dibbling - Rs 240.00				
	Other Charge : Cost towards Dibbling/laying of lawn inclusive of mixing of ingradients, application of manure and spreading (5x5 cm)				
54	Digging pits size 0.75mx0.75mx0.75 filling up to 50% the pits with top excavated soil and remainging 50% with sand, Fym, Red earth (0,021 Cum) (ie in the proportion of 1:2:3) and **Yucca Specious Silver (90cm - 150cm ht)** including cost of plant, materials, transporation and handling & planting cost).	Each	104.00		
55	Digging pits size 0.75mx0.75mx0.75 filling up to 50% the pits with top excavated soil and remainging 50% with sand, Fym, Red earth (0,021 Cum) (ie in the proportion of 1:2:3) and **Plumeria Pudica (150cm - 240cm ht)** including cost of plant, materials, transporation and handling & planting cost).	Each	73.00		
56	Digging pits size 0.75mx0.75mx0.75 filling up to 50% the pits with top excavated soil and remainging 50% with sand, Fym, Red earth (0,021 Cum) (ie in the proportion of 1:2:3) and **Plumeria Singaporensis dwarf (60cm - 90cm ht)** including cost of plant, materials, transporation and handling & planting cost).	Each	64.00		